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(56) Documents Cited

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US 4466159 A

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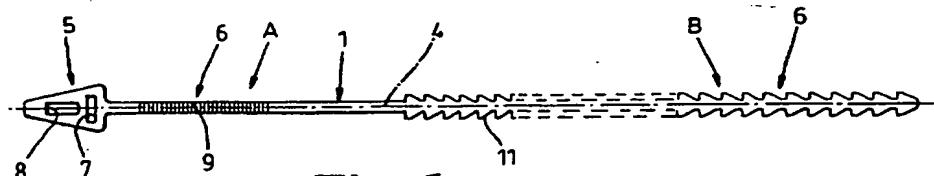
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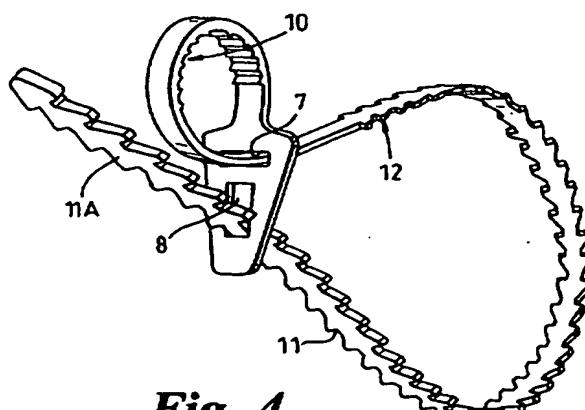
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(54) Abstract Title  
Securing tie

(57) A tie (1) for releasably securing a first object (2) to a second object (3), is of elongate, flexible material, having a longitudinal axis, with one end of the tie (1) being provided with an enlarged head (5) from which head a tail (6) integrally extends, the head (5) being provided with two slots (7, 8) of dimensions such that the tail (6) may be passed therethrough, with a first one (7) of the slots being transverse, or generally so, to the longitudinal axis (4), and with the second one (8) of the slots being coincident, or generally so, the tail being provided with the longitudinal axis (4), with a first set of serrations or teeth (9) for engagement with the first slot (7) to form a first, permanent loop (10), and the tail also being provided with a second set of serrations or teeth (11) for engagement with the second slot (8), to form a second, readily releasable loop (12).



**Fig. 1**



**Fig. 4**

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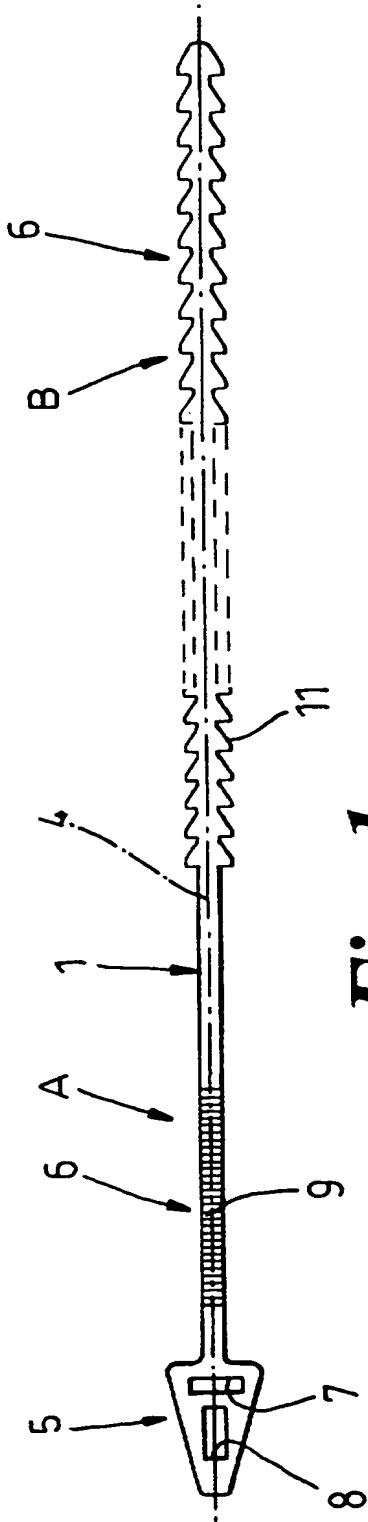


Fig. 1

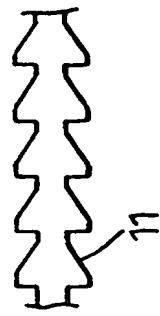


Fig. 3

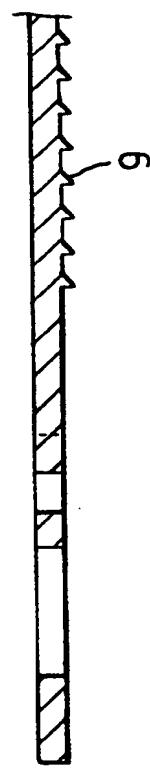
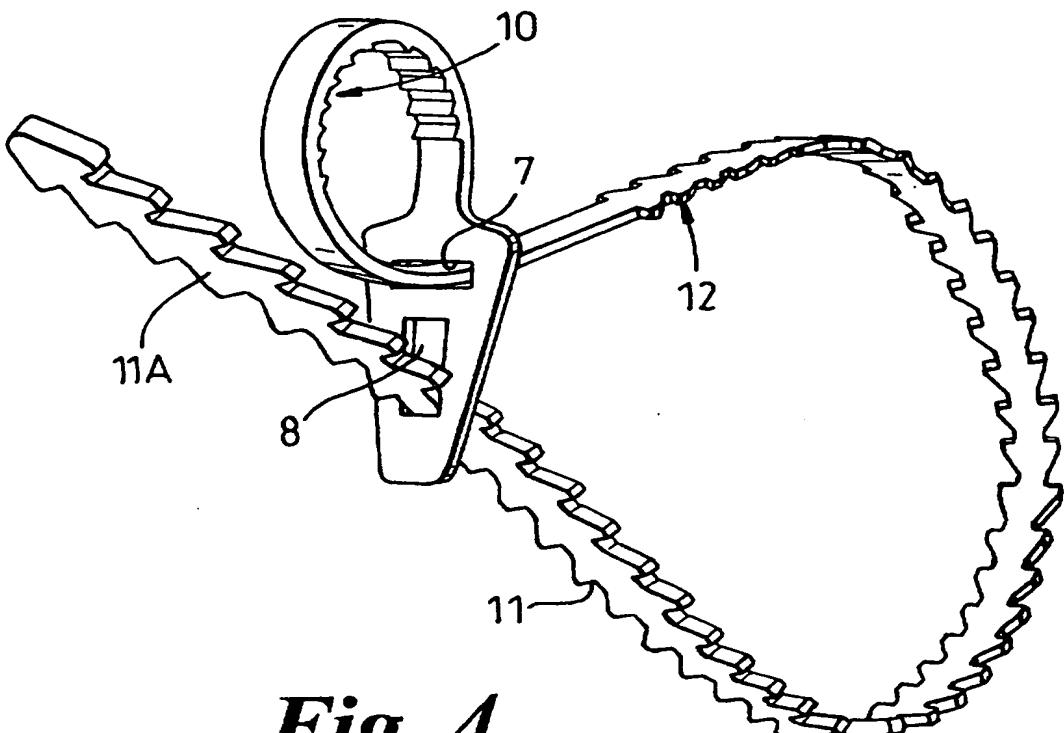
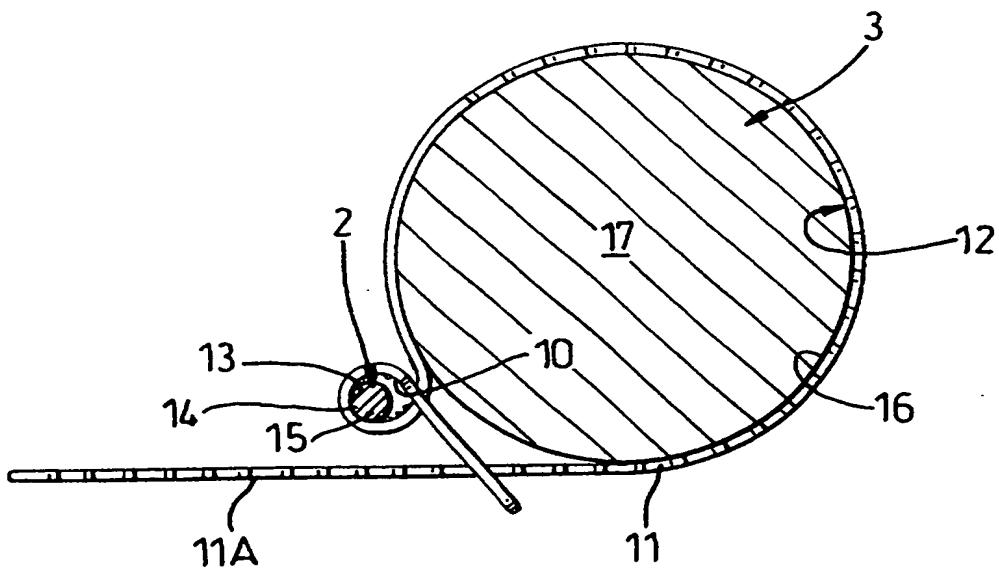


Fig. 2

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**Fig. 4**



**Fig. 5**

**Title of the Invention**

A securing tie

**Field of the Invention**

5 This invention relates to a securing tie for releasably securing a first object, eg a portion of netting, to a second object, eg a goal post.

**Background of the Invention**

Sports nets for football (soccer), baseball, cricket, hockey etc fields or pitches are 10 normally erected before a game or a training session, whether amateur or professional, and dismantled afterwards for storage to avoid theft, weathering damage, or criminal damage. Erection involves satisfactory securing the netting (in the case of football) to the cross-bar, to the 15 goal posts, to any supporting stanchion and to the ground, and is frequently effected simply with string or cord. This is a time-consuming operation, particularly at dismantling, especially if the string has become knotted or tangled and if wet and/or cold conditions prevail.

**Object of the Invention**

A basic object of the present invention is the provision of an improved tie for releasably 20 securing a first object (a sports net for example) to a second object (a sports frame or goal for example).

**Summary of the Invention**

According to the present invention there is provided, a tie for releasably securing a first object to a second object, the tie being of elongate, flexible material, having a longitudinal axis,

with one end of the tie being provided with an enlarged head from which head a tail integrally extends, the head being provided with two slots of dimensions such that the tail may be passed therethrough, with a first one of the slots being transverse, or generally so, to the longitudinal axis, and with the second one of the slots being coincident, or generally so, with the longitudinal axis, the tail being provided with a first set of serrations or teeth for engagement with the first slot to form a first, permanent loop, and the tail also being provided with a second set of serrations or teeth for engagement with the second slot, to form a second, readily releasable loop.

Thus, in use, after embracing a portion such as a strand of a football (soccer) net, at a location where it is desired to apply the tie, the tail is passed through the first slot to define the first loop, and with one or more teeth of the first set engaging a portion of the head adjacent the first slot to restrain inadvertent retraction of the tail and thus maintain permanently the first loop. With the tie thus attached at a user-selected location to a strand of the net, the remainder of the tail is passed around a goalpost etc to form a second loop, before being manually twisted through  $90^\circ$  and then passed through the second slot, with one or more teeth engaging a portion of the head adjacent the second slot to define the second loop, again to restrain inadvertent retraction of the tail and release of the tie and hence the net, from the goalpost, crossbar, groundstake etc, until retraction is required.

It follows, that at the end of a game or training session, when dismantling of the net is required, the user manoeuvres the tooth/teeth of the second set from the second slot, so that the tail may be withdrawn through the second slot and thus the tie, and specifically the second loop released from the goalpost. However, the first loop is left undisturbed so that the required number of ties eg 50, remain on a football net in correct positions, ready for the next required assembly. Thus, compared with the use of conventional ties, once the ties in accordance with the invention are attached to the net at strategic locations, all future need for fastening ties to a net

when putting up a net before a game, and unfastening ties from a net when taking down a net after a game, are totally avoided.

#### **Preferred of Optional Features of the Invention**

5       The tie is produced in a synthetic plastics material eg nylon, synthetic rubber, so that it is completely weatherproof.

The tail has a width less than the length of each slot.

10      The number of teeth in the first set, and hence the length of the tail over which the first set extend enable a range of first loop sizes to be accommodated by a single size of tie, so that the first loop could be fitted over a cane, pole, stanchion, rope etc of various diameters or cross-sectional shapes, to attach the ties to such objects.

The first set of teeth are provided on one face of the tail, in a location adjacent the head.

The second set of teeth project from side edges of the tail.

15      The second set of teeth project to both side edges of the tail, and the overall lateral dimension between two teeth projecting from opposite sides of the tail is slightly less than the length of each slot, so that when aligned with the slot, the tail may pass therethrough, but when turned through 90° or thereabouts a tooth or teeth of the second set engage(s) portions of the head adjacent the second slot.

Pairs of opposed teeth of the second set together basically define an arrow shape, with 20 an angled lead-in face of each tooth typically at 30° to longitudinal axis, and with an abutment face of each tooth typically at 90° to the longitudinal axis.

The slot adjacent the tail is orthogonal to the longitudinal axis, and the slot distal from the tail is coincident with the longitudinal axis.

The tail is of such a length and the second set of teeth are of such number and hence

longitudinal extent, that a range of pole or post diameters or cross-sectional shapes typically from  $\frac{1}{2}$ " to 4" or more can be accommodated by a single tie of finite length.

The second set of teeth extend from the end of the tail distal from the head, virtually for the full length of the tail, separated from the first set of teeth by a plain portion of tail.

5 Clearly, the tie in accordance with the invention can be produced in a range of sizes, both as to length and width, to suit the required use.

Although examples of use above have been restricted to sports netting, other applications would be gardening when the first object to which the tie was to be permanently attached was a trellis or stake, and the second object to be temporarily embraced was a plant or tree.

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#### **Brief Description of the Drawings**

Figure 1 is a plan view of a tie in accordance with the invention;

Figure 2 is a view, to an enlarged scale, of portion A of Figure 1;

Figure 3 is a view, to an enlarged scale, of portion B of Figure 1;

15 Figure 4 is a perspective view of the tie of Figures 1 to 3 formed into two loops; and  
Figure 5 shows the tie of Figure 4 looped around a portion of netting and a goalpost.

In the drawings a tie (1) for releasably securing a first object (2) to a second object (3),  
20 is of elongate, flexible synthetic plastics material such as nylon, and has a longitudinal axis (4).  
One end of the tie (1) is provided with an enlarged head (5) from which head a tail (6) integrally  
extends. The head (5) is provided with two slots (7, 8) of dimensions such that the tail (6) may  
be passed therethrough, with a first one (7) of the slots being transverse, or generally so, to the  
longitudinal axis (4), and with the second one (8) of the slots being coincident, or generally so,  
with the longitudinal axis (4). A first set of serrations or teeth (9) for engagement with the first  
slot (7) enable the user to form a first, permanent loop (10), whilst a second set of serrations or

teeth (11) for engagement with the second slot (8), enable the user to form a second, readily releasable loop (12). As indicated in Figure 5, the first, permanent loop (10) engages a portion (13) of a strand (14) of netting (15), whilst the second, releasable loop (12) engages a portion (16) of a goalpost, crossbar etc (17), and the excess length (11A) is preferably trimmed off to avoid being a potential hazard.

**CLAIMS**

1. A tie for releasably securing a first object to a second object, the tie being of elongate, flexible material, having a longitudinal axis, with one end of the tie being provided with an enlarged head from which head a tail integrally extends, the head being provided with two slots of dimensions such that the tail may be passed therethrough, with a first one of the slots being transverse, or generally so, to the longitudinal axis, and with the second one of the slots being coincident, or generally so, with the longitudinal axis, the tail being provided with a first set of serrations or teeth for engagement with the first slot to form a first, permanent loop, and the tail also being provided with a second set of serrations or teeth for engagement with the second slot, to form a second readily releasable loop.
2. A tie as claimed in Claim 1, produced in synthetic plastics or synthetic rubber material.
- 15 3. A tie as claimed in Claim 2, wherein the material is nylon.
4. A tie as claimed in any preceding Claim, wherein the tail has a width less than the length of each slot.
- 20 5. A tie as claimed in any preceding Claim, wherein the number of teeth in the first set, and hence the length of the tail over which the first set extend enable a range of first loop sizes to be accommodated by a single size of tie, so that the first loop could be fitted over a cane, pole, stanchion, rope etc of various diameters or cross-sectional shapes, to attach the ties to such objects.

6. A tie as claimed in any preceding Claim, wherein the first set of teeth are provided on one face of the tail, in a location adjacent the head.
7. A tie as claimed in any preceding Claim, wherein the second set of teeth project from side edges of the tail.
8. A tie as claimed in any preceding Claim, wherein the second set of teeth project to both side edges of the tail, and the overall lateral dimension between two teeth projecting from opposite sides of the tail is slightly less than the length of each slot, so that when aligned with the slot, the tail may pass therethrough, but when turned through 90° or thereabouts a tooth or teeth of the second set engage(s) portions of the head adjacent the second slot.
9. A tie as claimed in any preceding Claim, wherein pairs of opposed teeth of the second set together basically define an arrow shape, with an angled lead-in face of each tooth at 15 30° to longitudinal axis, and with an abutment face of each tooth at 90° to the longitudinal axis.
10. A tie as claimed in any preceding Claim, wherein the slot adjacent the tail is orthogonal to the longitudinal axis, and the slot distal from the tail is coincident with the longitudinal 20 axis.
11. A tie as claimed in any preceding Claim, wherein the tail is of such a length and the second set of teeth are of such number and hence longitudinal extent, that a range of pole or post diameters or cross-sections typically from ½" to 4" or larger, or cross-sections,

whether regular or irregular can be accommodated by a single tie of finite length.

12. A tie as claimed in any preceding Claim, wherein the second set of teeth extend from the end of the tail distal from the head, virtually for the full length of the tail, separated from the first set of teeth by a plain portion of tail.

5

13. A tie substantially as herein before described with reference to the accompanying drawing(s), of any length and of any width to suit the objects to be tied together.



Application No: GB 0016737.9  
Claims searched: 1-12

Examiner: Philip Silvie  
Date of search: 20 November 2000

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): E2A (AGMA)

Int Cl (Ed.7): B65D 63/10; F16B 2/08; F16L 3/233

Other: Online: EPODOC, WPI, PAJ

**Documents considered to be relevant:**

| Category | Identity of document and relevant passage | Relevant to claims |
|----------|---|--------------------|
| X        | GB 2 331 548 A (BOWTHORPE) see fig. 1     | 1,2,6 at least     |
| X        | GB 2 243 401 A (BOWTHORPE) see fig. 3     | 1,2,6 at least     |
| X        | GB 1 108 514 A (RAPIDGUM) see figs. 1,2   | 1,2,7 at least     |
| X        | US 4 466 159 A (BURRAGE) see fig. 4       | 1,2,7 at least     |

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|---|---|---|--|
| X | Document indicating lack of novelty or inventive step   | A | Document indicating technological background and/or state of the art.  |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention.          |
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